

**IN THE CLAIMS:**

A Listing of the Claims is as follows:

1. (Currently Amended): A rechargeable battery, comprising  
at least one anode;  
at least one cathode, each said cathode being in opposing spaced relationship to each  
said anode;  
two layers of differing porous separators/binders intermediate each opposing anode  
and cathode to maintain said ~~spacing and to bind each anode to each cathode~~ opposing spaced  
relationship;  
a non-aqueous electrolyte filling said pores of said layers of separator/binder;  
wherein: a first separator/binder comprises a mixture of polymer P<sub>1</sub> and a particulate  
material M<sub>1</sub>,  
a second separator/binder comprises a mixture of polymer P<sub>2</sub> and a particulate  
material M<sub>2</sub>,  
polymer P<sub>1</sub> is soluble to a degree for forming a polymeric solution in a solvent S<sub>1</sub>,  
polymer P<sub>2</sub> is soluble to a degree for forming a polymeric solution in a solvent S<sub>2</sub>,  
polymer P<sub>1</sub> remains solid in the presence of solvent S<sub>2</sub>,  
polymer P<sub>2</sub> remains solid in the presence of solvent S<sub>1</sub>,  
particulate material M<sub>1</sub> remains solid in the presence of solvent S<sub>1</sub>,  
particulate material M<sub>2</sub> remains solid in the presence of solvent S<sub>2</sub>, and  
said opposing spaced relationship of each cathode to each anode is maintained by  
~~the binding of each anode~~ being bound to the first separator/binder, the first  
separator/binder being bound to the second separator/binder, and the second separator/binder  
being bound to each cathode ~~provided by polymers P<sub>1</sub> and P<sub>2</sub>.~~

2. (Original): A rechargeable battery according to Claim 1, wherein said at least one anode and said at least one cathode are stacked as a prismatic stacked structure.

3. (Original): A rechargeable battery according to Claim 1, wherein said battery has one anode and one cathode, and said anode and cathode are formed as a cylindrical wound structure.

4. (Original): A rechargeable battery according to Claim 2, wherein a plurality of anodes and cathodes are stacked, and the stacking sequence is a repetition of (anode)-(first separator/binder)-(second separator/binder)-(cathode)-(first separator/binder)-(second separator/binder)-(anode).

5. (Original): A rechargeable battery according to Claim 2, wherein a plurality of anodes and cathodes are stacked, and the stacking sequence is a repetition of (anode)-(first separator/binder)-(second separator/binder)-(cathode)-(second separator/binder)-(first separator/binder)-(anode).

6. (Previously Presented): A rechargeable battery according to Claim 2, wherein a plurality of anodes and cathodes are stacked, and the stacking sequence is a repetition of (cathode)-(first separator/binder)-(second separator/binder)-(anode)-(second separator/binder)-(first separator/binder)-(cathode).

7. (Original): A rechargeable battery according to Claim 3, further comprising a core upon which said anode and cathode are wound to form said cylindrical wound structure.

8. (Original): A rechargeable battery according to Claim 7, wherein the shape of the core is one selected from: a cylinder and a hexahedron.

9. (Original): A rechargeable battery according to Claim 1, wherein solvent  $S_1$  is of the hydrophobic type, and solvent  $S_2$  is of the hydrophilic type.

10. (Original): A rechargeable battery according to Claim 1, wherein solvent  $S_1$  and solvent  $S_2$  are of the hydrophobic type, or solvent  $S_1$  and solvent  $S_2$  are of the hydrophilic type.

11. (Original): A rechargeable battery according to Claim 9, wherein the hydrophobic solvent  $S_1$  is one selected from: heptane, tetrahydrofuran, DMF, and DMSO, and the hydrophilic solvent  $S_2$  is one selected from: methanol, ethanol, and methanol/chloroform.

12. (Original): A rechargeable battery according to Claim 10, wherein the hydrophobic solvents  $S_1$  and  $S_2$  are selected from: heptane, tetrahydrofuran, DMF,

and DMSO, or

the hydrophilic solvents  $S_1$  and  $S_2$  are selected from: methanol, ethanol, and methanol/chloroform.

13. (Original): A rechargeable battery according to Claim 1, wherein polymer  $P_1$  is at least one selected from: PE, PP, PVC, polystyrene, and PAN; and polymer  $P_2$  is at least one selected from: PEO, PPO, polycarbonate, PMMA, and PVP.

14. (Original): A rechargeable battery according to Claim 1, wherein particulate materials  $M_1$  and  $M_2$  are selected from: silicon dioxide, magnesium oxide, calcium oxide, strontium oxide, barium oxide, boron oxide, aluminum oxide, silicon oxide; synthetic or natural zeolites, borosilicate, calcium silicate, aluminum polysilicates, wood flours, glass microbeads, glass hollow microspheres, polyester fibers, nylon fibers, rayon fibers, acetate fibers, acrylic fibers, polyethylene fibers, polypropylene fibers, polyamide fibers, polybenzimidazole fibers, borosilicate glass fibers, and wood fibers.

15. (Original): A rechargeable battery according to Claim 14, wherein particulate materials  $M_1$  and  $M_2$  are the same or  $M_1$  and  $M_2$  are different.

16. (Original): A rechargeable battery according to Claim 1, wherein in the first separator/binder the percent by weight of the particulate material is between 50% and 98%; and in the second separator/binder the percent by weight of the particulate material is

between 50% and 98%.

17. (Original): A rechargeable battery according to Claim 1, wherein  
in the first separator/binder the percent by weight of the particulate material is  
between 80% and 97%; and  
in the second separator/binder the percent by weight of the particulate material is  
between 70% and 92%.

18. (Original): A rechargeable battery according to Claim 13 wherein polymer  $P_1$   
and/or polymer  $P_2$  are/is a combination of two or more polymer materials.

19. (Original): A rechargeable battery according to Claim 14 wherein particulate  
material  $M_1$  and/or particulate material  $M_2$  are/is a combination of two or more particulate materials.

20. (Original): A rechargeable battery according to Claim 1, wherein the first  
separator/binder is of a thickness in the range of 10-200  $\mu\text{m}$ , and  
the second separator/binder is of a thickness in the range of 10-200  $\mu\text{m}$ .

21. (Original): A rechargeable battery according to Claim 1, wherein the first  
separator/binder is of a thickness in the range of 30-60  $\mu\text{m}$ , and  
the second separator/binder is of a thickness in the range of 30-60  $\mu\text{m}$ .